

Lockstitch machine with a long arm and a thread trimmer

TL-2200QVP

INSTRUCTION MANUAL

NOTE:

Congratulations on your purchase of a JUKI sewing machine.
Please be sure to read this Instruction Manual before operating the sewing machine to ensure safe operation. Please be sure to keep the Instruction Manual so that you can read it whenever necessary.

EN

“IMPORTANT SAFETY INSTRUCTIONS”

When using an electrical appliance, basic safety precautions should always be followed, including the following: Read all instructions before using this sewing machine.

“DANGER ____ To reduce the risk of electric shock:”

1. The appliance should never be left unattended when plugged in.
2. Always unplug this appliance from the electric outlet immediately after using and before cleaning.

“WARNING ____ To reduce the risk of burns, fire, electric shock, or injury to persons:”

1. Do not allow this appliance to be used as a toy. Close attention is necessary when this appliance is used by or near children. This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
2. Use this appliance only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as contained in this manual.
3. Never operate this appliance if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the appliance to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.
4. Never operate the appliance with any air openings blocked. Keep ventilation openings of the sewing machine and foot control free from the accumulation of lint, dust, and loose cloth.
5. Keep fingers away from all moving parts. Special care is required around the sewing machine needle.
6. Always use the proper stitch plate. The wrong plate can cause the needle to break.
7. Do not use bent needles.
8. Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
9. Switch the sewing machine off “O” when making any adjustments in the needle area, such as threading needle, changing needle, threading bobbin, or changing presser foot.
10. Always unplug the machine from the electrical outlet when removing covers, when lubricating or when making any other user servicing adjustments mentioned in the instruction manual.
11. Never drop or insert any object into any opening.
12. Do not use outdoors.
13. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
14. To disconnect, turn all controls to the off “O” position, then remove plug from outlet.
15. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
16. Turn OFF the power switch before insertion/removal of any cord and any plugs.

“SAVE THESE INSTRUCTIONS”

“This sewing machine is intended for household use.”



Congratulations on your purchase of a JUKI sewing machine.

Please be sure to read safety precautions in “To use the sewing machine safely” in the Instruction Manual before use to fully understand the functions and operating procedures of the sewing machine so as to use the sewing machine for a long time. After you have read the Instruction Manual, please be sure to keep it together with the warranty so that you can read it whenever necessary.











To use the sewing machine safely

Marks and pictographs included in the Instruction Manual and shown on the sewing machine are used so as to ensure safe operation of the sewing machine and to prevent possible risk of injury to the user and other people.

Warning marks are used for different purposes as described below.

 WARNING	Indicates that there is a possible risk of death or serious injury if this mark is ignored and the sewing machine is used in a wrong manner.
 CAUTION	Indicates the operation, etc. which can cause a possible risk of personal injury and/or physical damage if this mark is ignored and the sewing machine is used in a wrong manner.

Pictographs mean the following:

	Danger warning which is not specified		There is a risk of electrical shock		There is a risk of fire		There is a risk of injury to hands, etc.
	Prohibited matter which is not specified		Disassembly/alteration is prohibited		Do not place fingers under the needle		Do not pour oil, etc.
	Generally required behavior		Disconnect the power plug				

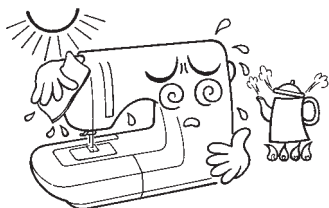
WARNING

For the combination of the material and the thread and needle, in particular, refer to the explanation table in “Replacement of the needle”.

If the needle or thread does not match the material used such as in the case that an extra heavy-weight material (e.g., denim) is sewn with a thin needle (#11 or higher), the needle can break resulting in an unexpected personal injury.

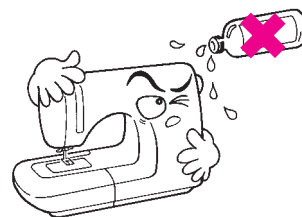
Other precautions

- Do not put the sewing machine under the direct sunlight or in a humid place.



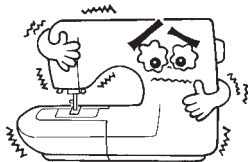
- Do not wipe the sewing machine with solvent such as thinner.

When the sewing machine is soiled, put a small quantity of neutral detergent on a piece of soft cloth and carefully wipe off the sewing machine with it.



Be aware that the following state can take place since the sewing machine incorporates semi-conductor electronic parts and precise electronic circuits.

- Be sure to use the sewing machine in the temperature range from 5°C to 40°C.
If the temperature is excessively low, the machine can fail to operate normally.



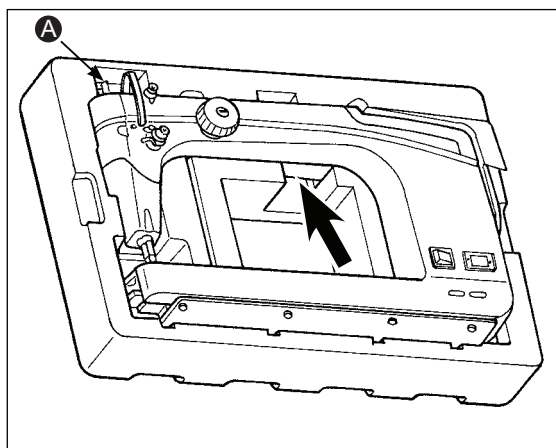
- This sewing machine will stop due to safety mechanism to prevent the machine from overheating, when it sews slowly and for a long time.

At this time, turn off the power switch, after a while please be ON the power switch.



* The operating temperature of the sewing machine is between 5°C and 40°C. Do not use the sewing machine under the direct sunlight, near the burning things such as a stove and candle, or in a humid place. By so doing, the temperature in the interior portion of the sewing machine can rise or the coating of the power cord can melt, causing fire or electrical shock.

How to carry the sewing machine



■ How to take out the sewing machine

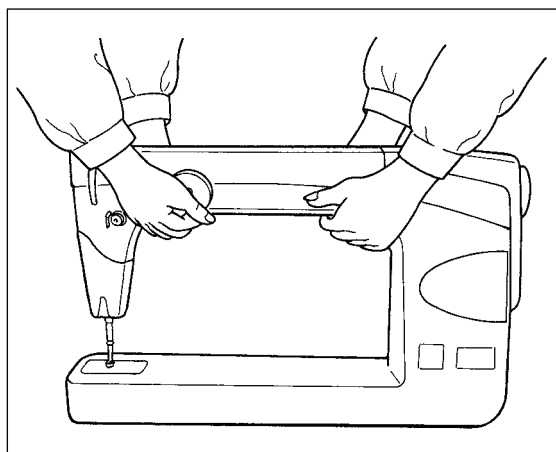
CAUTION

If you pull up the sewing machine by holding presser regulating screw section **A**, the sewing machine can break. In addition, be aware that the presser regulating screw can break if a physical impact is given to it.

Pull out the sewing machine from the cutout of styrene foam by holding the main body of the arm.

CAUTION

Turn OFF the power switch. Always must be disconnected plug from socket-outlet.



■ How to hold the sewing machine

CAUTION

1. Never hold the handwheel since it rotates.
2. Always must be handle the sewing machine with two persons or more since the sewing machine weighs 26 kg or more.
3. Do not hold the sewing machine by placing hands near the needle bar and the presser bar to avoid the risk of injury.

Carry the sewing machine while holding the machine arm with two persons as shown in the figure.

GROUNDING INSTRUCTIONS

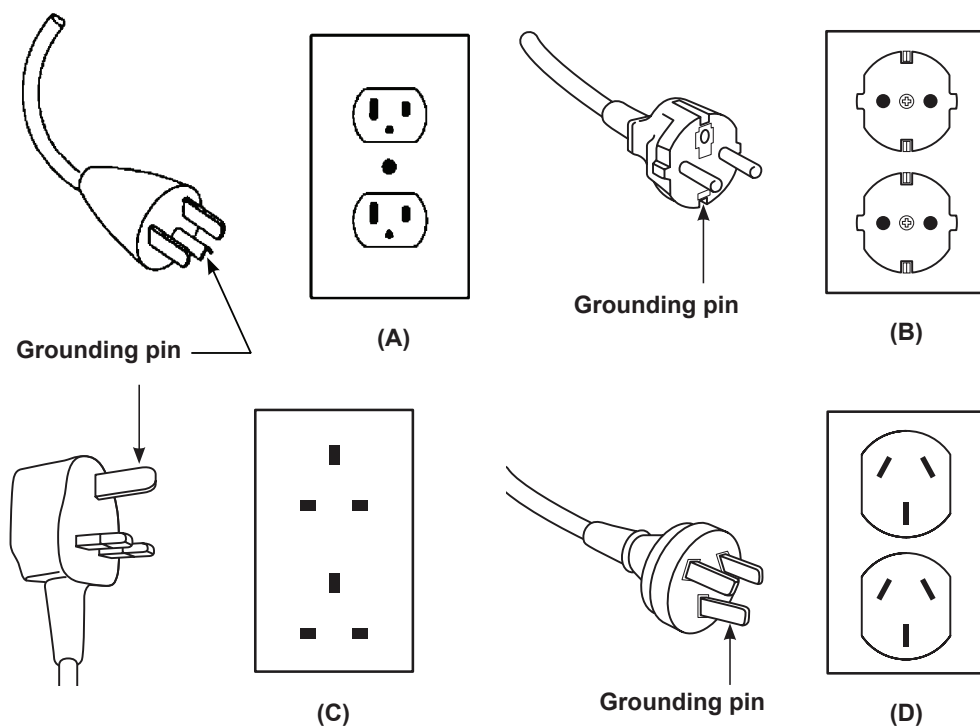
This product must be grounded. In the event of malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER - Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded.

Do not modify the plug provided with the product. If it will not fit the outlet, have a proper outlet installed by a qualified electrician.

Figure 1



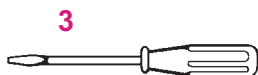
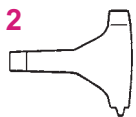
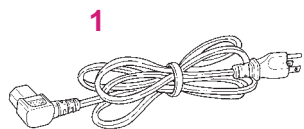
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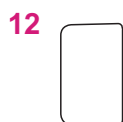
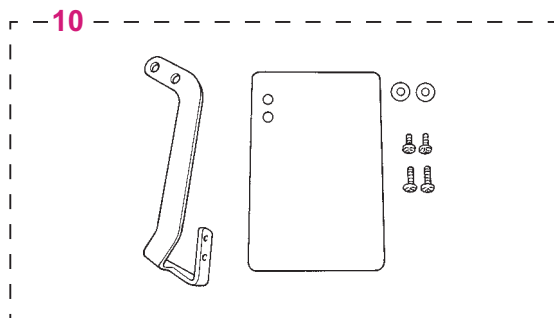
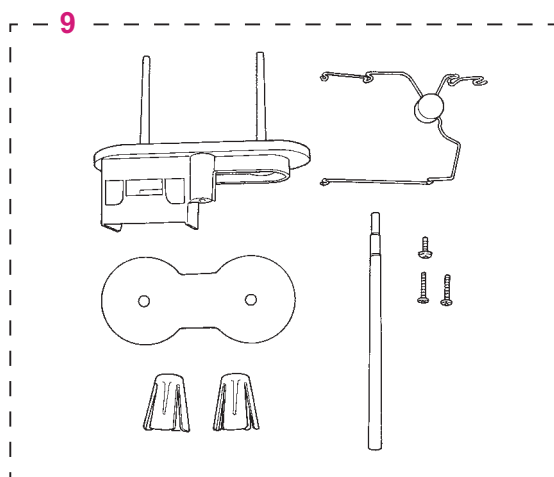
Specifications

Description	Specification
Sewing speed	Max. 2,200 sti/min
Needle bar stroke	35mm
Lift of presser foot	5.5mm
Needle	GB 134R
Lubricating oil	New Defrix Oil No.1
Dimensions of sewing machine	22.2W x 46.0H x 73.0L (cm)
Weight of sewing machine	26 kg
Rated power supply / Power consumption	AC100V-AC240V/1.2A-0.8A, 50/60Hz

Accessories

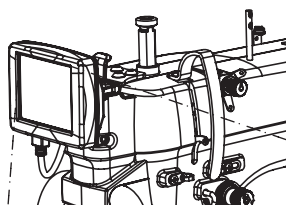
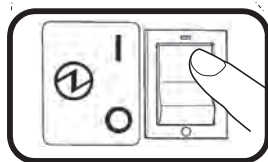
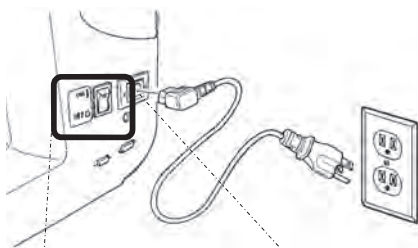


1. Power cord
2. Exclusive screwdriver
3. Screwdriver (small)
4. Cleaning brush
5. Bobbins (4pcs.)
6. Oiler
7. Needles (GB 134R #18)
8. Spool cap
9. Thread stand components
(spool holder, thread stand thread guide, bobbin winder spool pin, bobbin winder seat, anti-vibration cone (2 pcs.), setscrew large, setscrews small (2 pcs.))
10. Eye protection cover components
(safety plate, safety plate mounting plate, washers (2 pcs.), setscrews large (2 pcs.), setscrews small (2 pcs.))
11. Thread guide pin
12. Masking seal

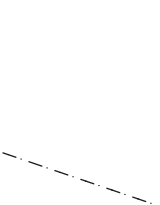


Setup and operation

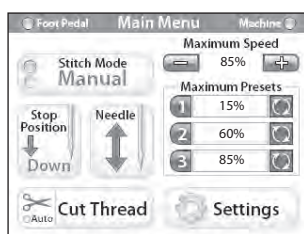
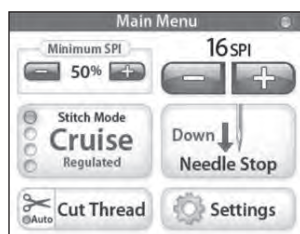
■ Basic Operating Procedures



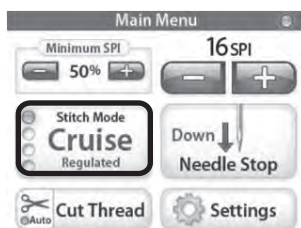
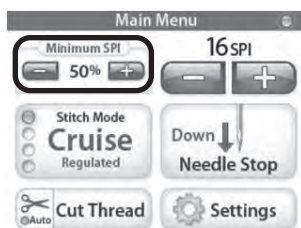
Screen of stand-up type



Screen of sit-down type



<1. Stand-up type>



- 1) Insert the electric power cord plug into the corresponding inlet.

Turn ON the power switch.

This is described in the Instruction Manual.

- 2) Set the machine settings from the LCD screen.

You can set the maximum sewing speed and the automatic thread trimming at the end of sewing.

For details,

please refer to the "Stitch Regulator User Manual".

- ① Setting the Maximum Sewing Speed

You can set the maximum sewing speed in 5% increments.

- ② Setting the Stitch Mode

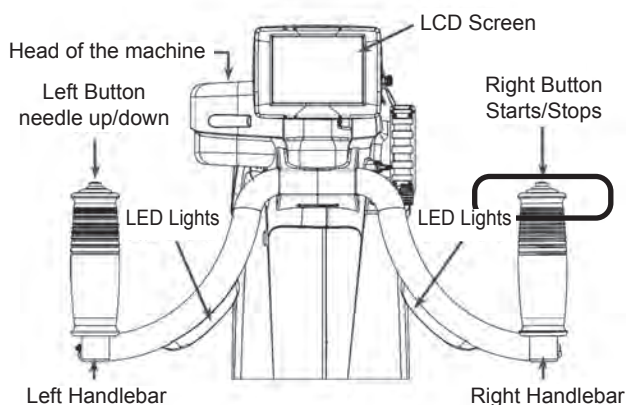
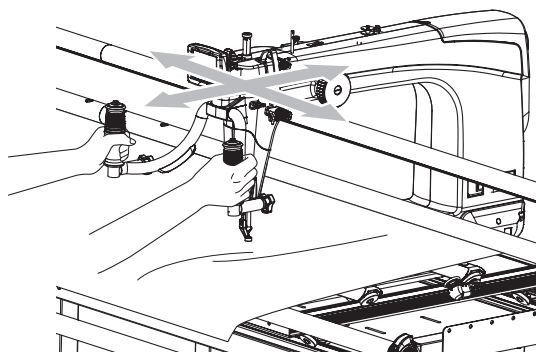
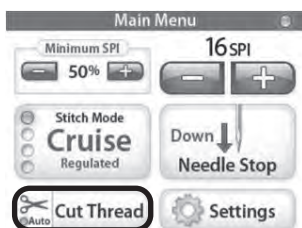
- Cruise Stitch Mode

When you press the "start button" on the right handlebar, the machine will sew at the maximum sewing speed that has been set.

When you move the sewing machine by the handles, the machine will sew automatically with a sewing speed so that the set "Stitch per Inch" (SPI) can be maintained.

- Baste Stitch Mode

When you press the "start button" on the right handlebar and move the sewing machine by the handles, it will sew with the stitch length that has been set.



- **Precise Stitch Mode**
The sewing machine won't sew, even if you press the "start button" on the right handlebar. When you move the sewing machine by the handles, the machine will automatically sew a constant stitch length according to the distance moved.
- **Manual Stitch Mode**
When you press the "start button" on the right handlebar, the machine will sew at the maximum sewing speed that has been set.

③ Trimming Thread

When you press this button, threads are trimmed automatically.

* Start sewing.

In a "stand-up" setup, you can stitch by moving the machine.

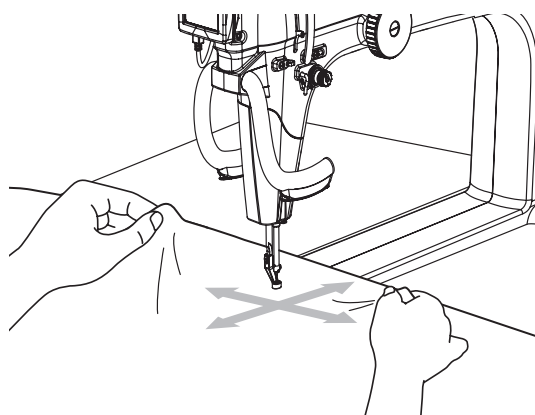
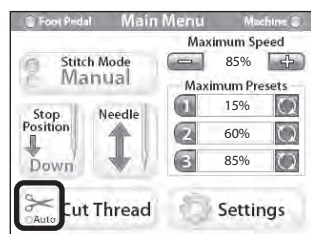
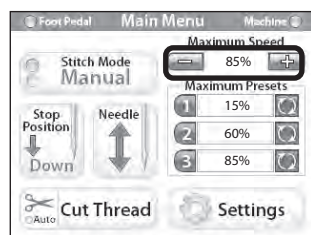
When you press the "start button" on the right handlebar, the sewing machine will start sewing according to your settings. When you press the "start button" again, the sewing machine will stop sewing.

Caution

- Don't put any heavy objects on the quilting frame and don't put a load heavier than normal sewing.
- Be careful of surrounding people and objects since you move the machine and sew.
- If you move the assembled quilting frame, some parts may be damaged or bent.
When moving the quilting frame, disassemble it, and then reassemble it correctly after it has been delivered.

* Use the screwdriver included with the sewing machine to remove any hazardous sharp shavings from the disassembled quilting frame and other components, as there is a risk of injury from such hazardous sharp points.

<2. Sit-down type>



① Setting the Maximum Sewing Speed

You can set the maximum sewing speed in 5% increments.

② Auto Thread Trimming Function

The sewing machine will trim the threads automatically when it stops.

③ Sewing and Manual Thread Trimming

When you press part A of the foot controller (pedal), the sewing machine will start sewing.

The sewing machine sews at a faster speed according to the amount that part A is pressed.

When you release your foot from part A, the machine will stop.

When you press part B, the machine will trim the threads.

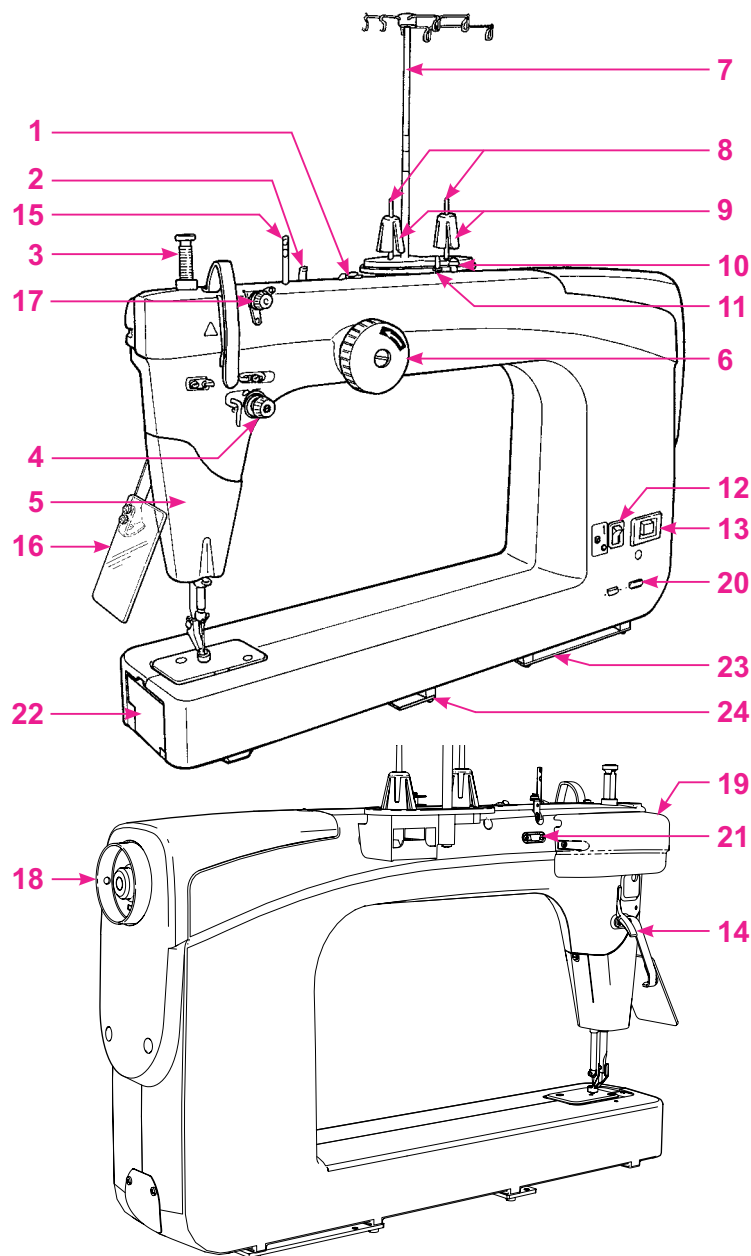
* Start sewing.

While pressing the foot controller (pedal), move the fabric to form stitches.

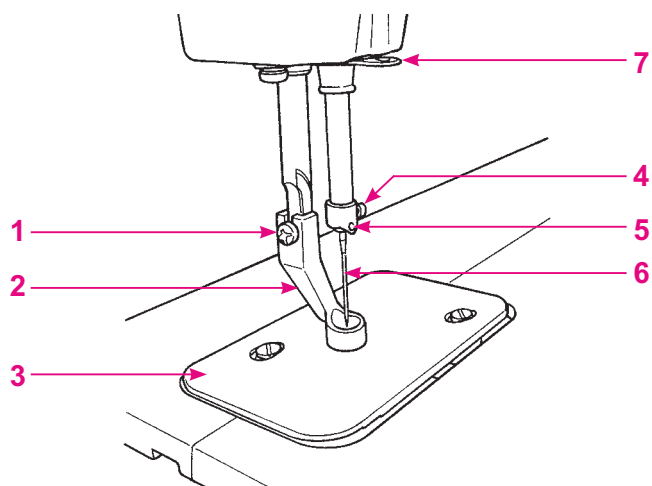
Caution

- * While sewing, don't pull or push the fabric with force, as it will cause the needle to break or cause injuries.

Principal Parts

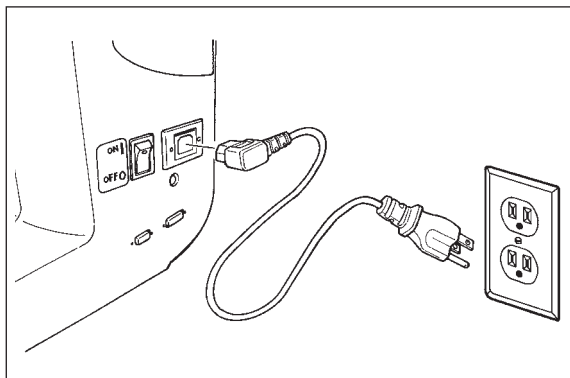


1. Thread trimmer retaining plate
2. Bobbin winder guide
3. Presser foot pressure regulator
4. Thread tension dial
5. Lamp (built-in type)
6. Hand pulley
7. Support rod
8. Spool pin
9. Anti vibration cone
10. Bobbin presser
11. Bobbin thread winding shaft
12. Power switch
13. Inlet of electric power cord
14. Presser foot lifting lever
15. Thread guide pin
16. Eye protection cover
17. Tension controller No. 1
18. Hand wheel
19. Presser regulator cover
20. Stitch regulator connection connector
21. Panel junction cable connection connector
22. Hook cover
23. Connecting plate (large)
24. Connecting plate (small)



1. Screw in the presser foot
2. Presser foot
3. Throat plate
4. Needle clamp
5. Needle bar thread hook
6. Needle
7. Needle bar thread guide

Name and Function of each component



■ Power cord

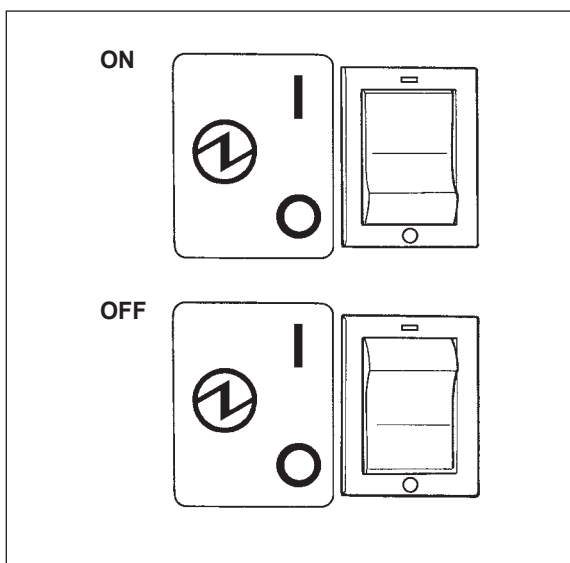
Insert the electric power cord plug into the corresponding inlet.

⚠ CAUTION

Turn OFF the power switch before insertion/removal of any cords and any plugs.

Perform these following steps before you are not using your sewing machine.

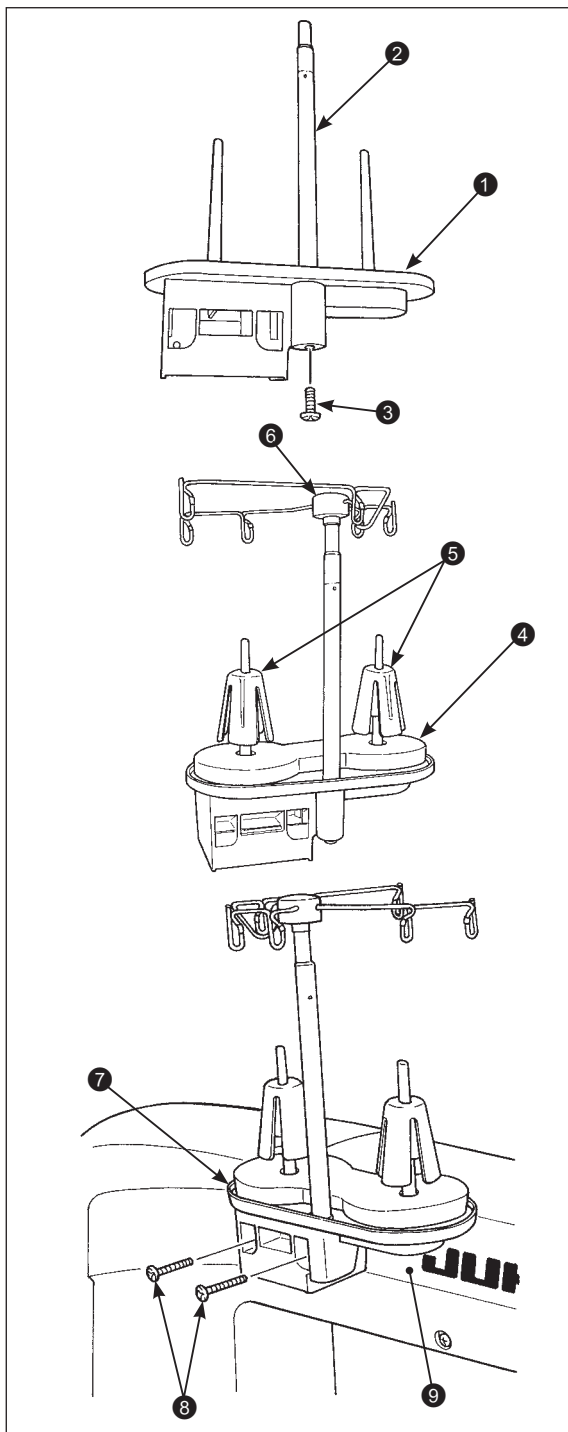
1. Turn OFF the power switch.
2. Remove the power plug from the wall outlet.



■ Power switch

Turn ON the machine, set the power switch to “I”.

Turn OFF the machine, set the power switch to “O”.

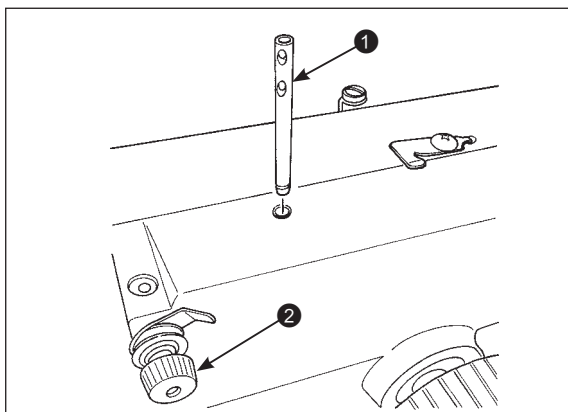


■ Installing the thread stand

CAUTION

Turn OFF the power switch.
Always must be disconnected plug from socket-outlet.

1. Insert bobbin winder spool pin ② into spool holder ①. Fix the former with setscrew ③.
2. Set bobbin winder seat ④ and two anti-vibration cones ⑤ on spool holder ①.
3. Set thread stand thread guide ⑥ on the top of bobbin winder spool pin ②.
4. Install thread stand ⑦ on frame ⑨ with two setscrews ⑧.



■ Installing the thread guide

CAUTION

Turn OFF the power switch.
Always must be disconnected plug from socket-outlet.

Insert thread guide pin ① into the frame with the holes in the pin faced to tension controller No. 1 ②. Pat the top of the thread guide pin with the handle of screwdriver to prevent the pin from slipping off easily.

■ Panel cord binding procedure

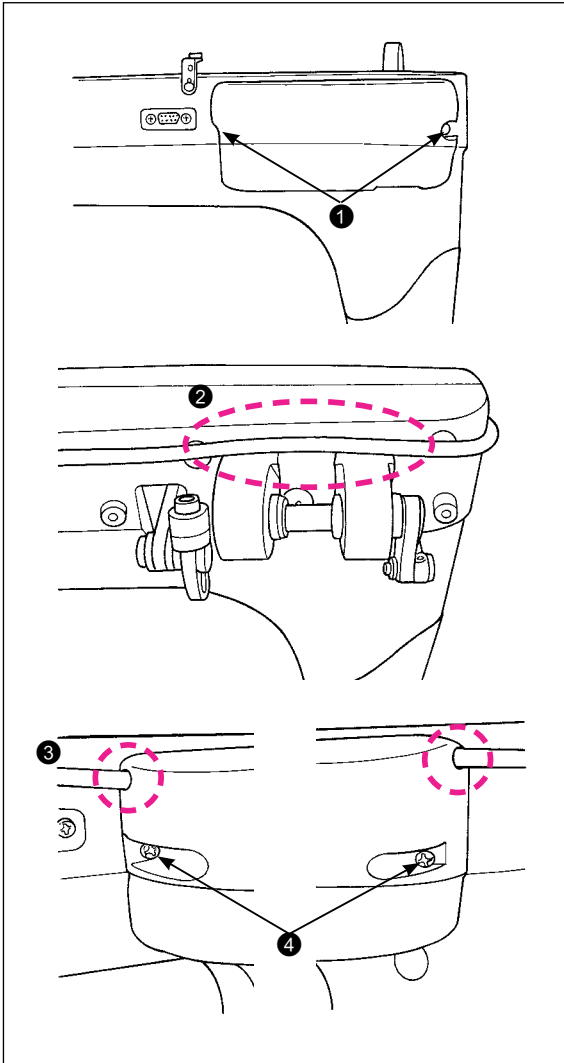


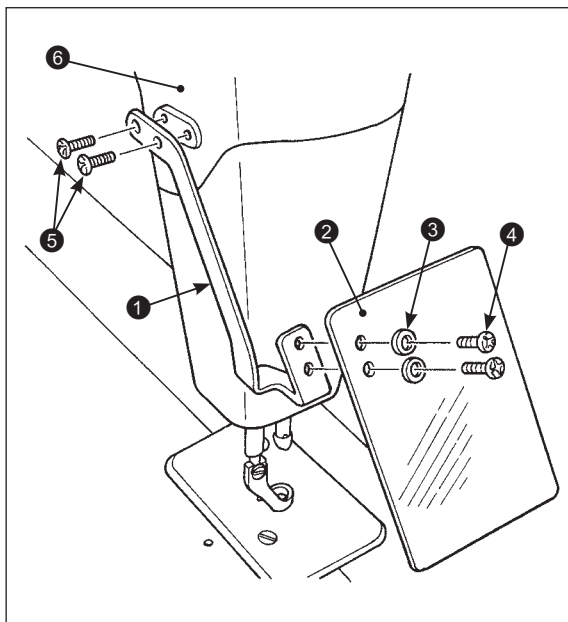
CAUTION

Turn OFF the power switch.

Always must be disconnected plug from socket-outlet.

- ❶ Remove two setscrews from the presser regulator cover.
Remove the presser regulator cover.
- ❷ Place the panel cord as illustrated in the figure.
It is necessary to place the panel cord at a position where the cord does not come in contact with the mechanical parts.
- ❸ Align the notch in the cover with the panel cord.
- ❹ Fix the presser regulator cover with the setscrews.





■ Installing the eye protection cover

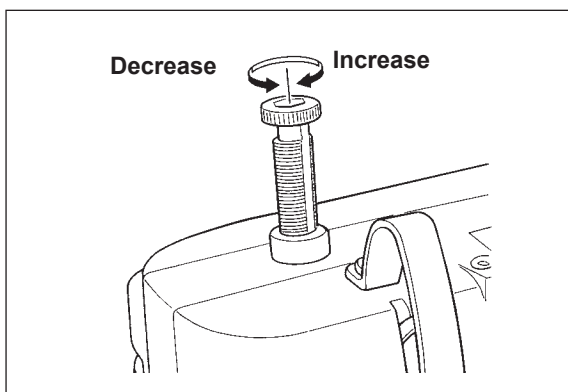
⚠ CAUTION

Turn OFF the power switch.
Always must be disconnected plug from socket-outlet.

⚠ DANGER

Be sure to install the eye protection cover since the cover protects eyes from being injured by a fragment of a broken needle.

1. Place eye protection cover ② and washer ③ in the written order on eye protection cover mounting plate ① and fix them with setscrew ④.
2. Install eye protection cover mounting plate ① on frame ⑥ with two setscrews ⑤.

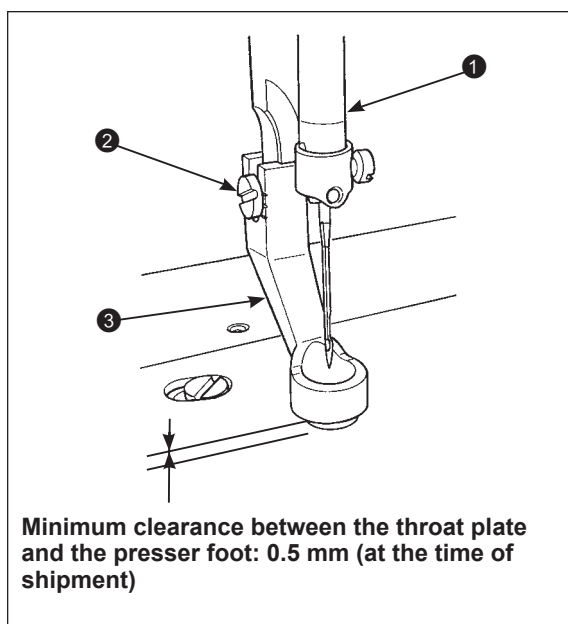


■ Presser foot pressure regulator and its indicator

⚠ CAUTION

Turn OFF the power switch.

Turning the presser foot pressure regulator adjusts the pressure of the presser foot.



■ Adjusting the presser foot height

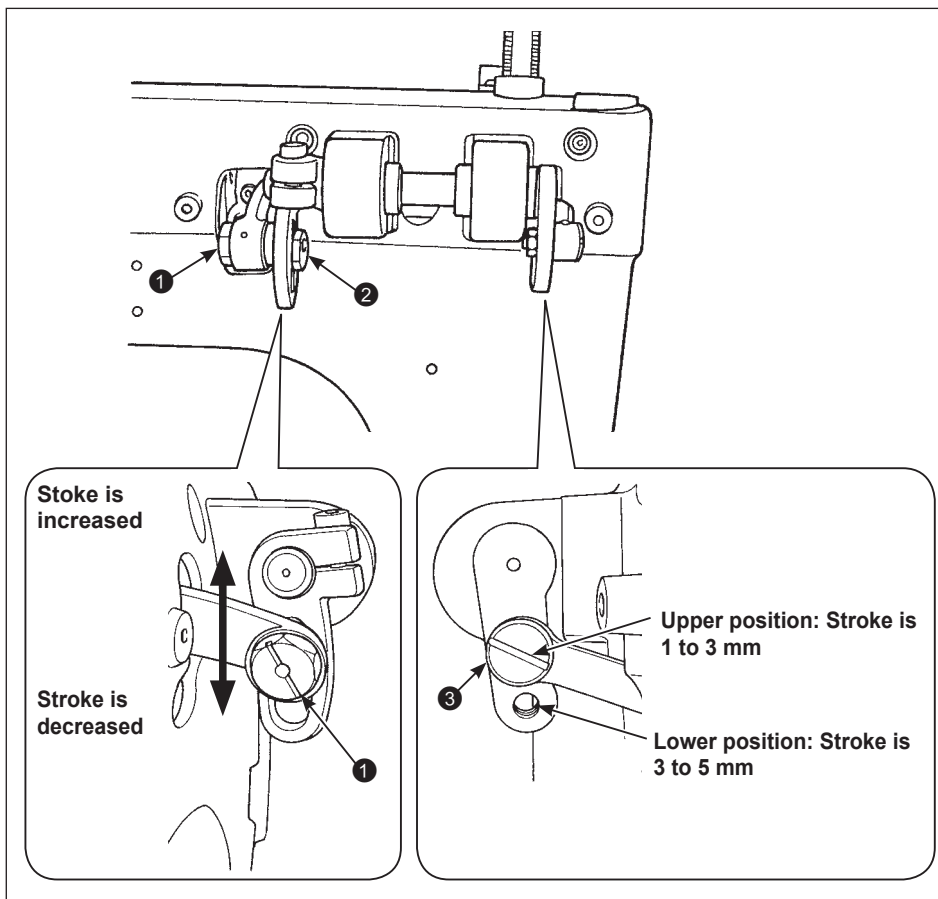
⚠ CAUTION

Turn OFF the power switch.
Always must be disconnected plug from socket-outlet.

If the sewing machine does not smoothly run because of the material thickness, it is necessary to change the presser foot height. Bring needle bar ① to the lowest point end. Loosen setscrew ② and adjust the height of presser foot ③. The minimum clearance between the throat plate and the presser foot has been factory-adjusted to 0.5 mm at the time of shipment.

⚠ CAUTION

If the upper position of the presser foot is too high, stitches cannot be formed.



■ Adjusting the presser foot stroke

It is possible to adjust the presser foot stroke.

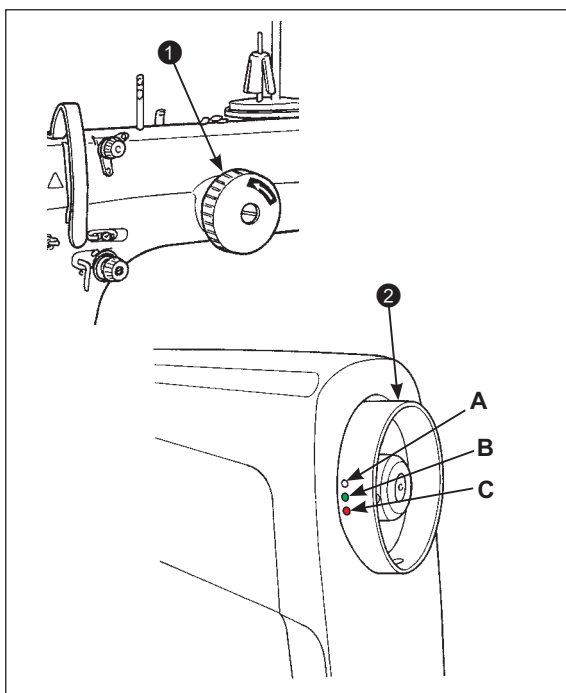
Remove presser regulator cover. Loosen nut ①. Shift block ② upward to increase the stroke, or downward to decrease it.

To increase the stroke more, change the position of setscrew ③ of the link arm to the lower position (stroke: 3 to 5 mm). The setscrew has been factory-set at the upper position (stroke: 1 to 3 mm) at the time of shipment.

After the completion of the adjustment, install the presser regulator cover which you have removed before the adjustment.

CAUTION

When the stroke is changed, the clearance between the presser foot and the throat plate will change. Re-adjust the presser foot height to a value which matches the material thickness.



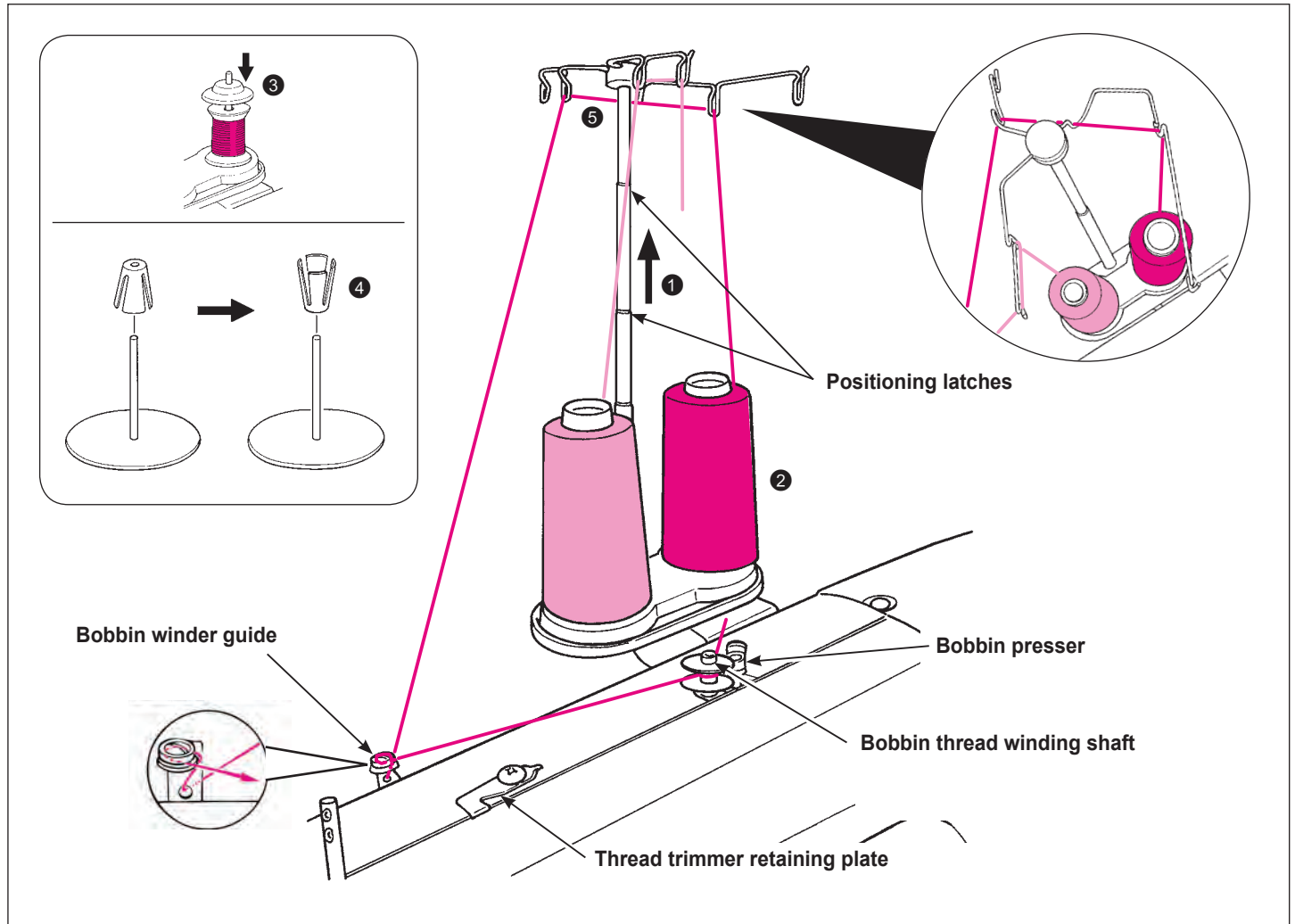
■ Handwheel

CAUTION

Keep hand away from the handwheel while the sewing machine is running.

- ① Push and turn the hand pulley to turn the main shaft.
- ② Turn on the power switch. White marker dot (A) on the handwheel is brought to the right front as observed from just beside.
White marker dot (A) is in the front side: The thread take-up lever comes up to its upper end.
Green marker dot (B) is in the front side: Not used
Red marker dot (C) is in the front side: It is used as the marker dot at the time of lubricating.

Winding the bobbin



1 Installing the thread guide.

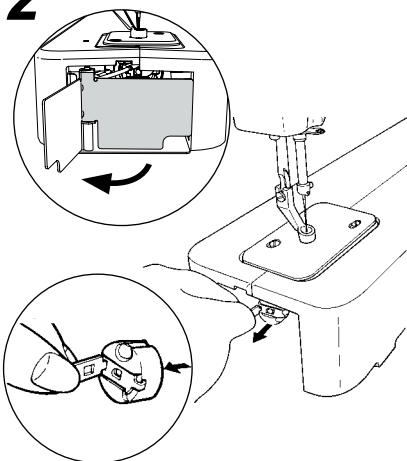


CAUTION

Turn OFF the power switch.

- ① Raise the support rod fully, turning slightly until the positioning latches engage.
- ② Set the large spool over the anti vibration cone.
- ③ Set the household-type thread onto the spool pin and then insert a spool cap in place.
- ④ To set a large-diameter spool, set the anti vibration cone upside down to stabilize the spool.
- ⑤ Pass the thread coming from the spool on the thread guide pin (rod) just above the spool.

2



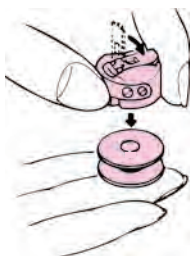
CAUTION

Turn OFF the power switch.

■ **Take out the bobbin case.**

Bring up the needle. Open the hook cover. Take out the bobbin case.

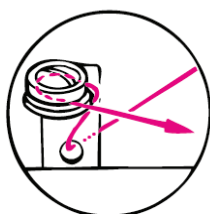
3



■ **Take out the bobbin from the bobbin case.**

Snap in the latch to let the bobbin come out of the bobbin case.

4



■ **Thread the bobbin winder guide.**

5



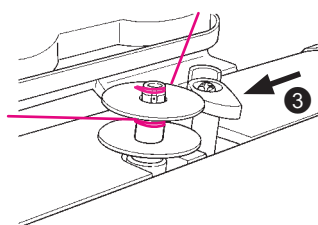
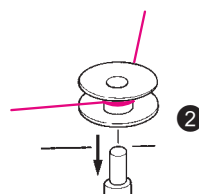
■ **Installing the bobbin.**

① Wind thread on the bobbin clockwise by several turns.

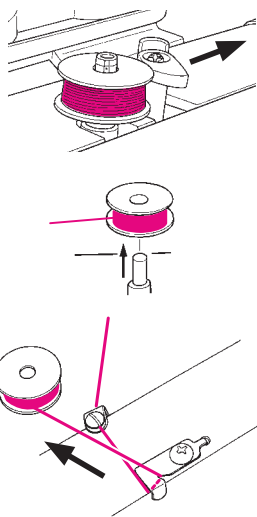
② Place the bobbin on the bobbin thread winding shaft.

③ Press the bobbin presser.

Thread is automatically wound on the bobbin.



6



■ **Upon completion of winding the bobbin.**

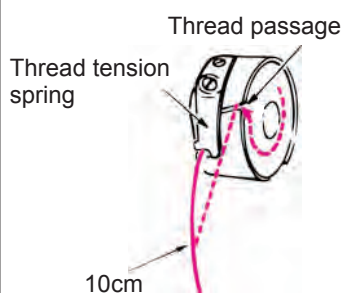
Return the bobbin presser to its home position. Take out the bobbin.
Trim the thread with the thread cutting knife.

7



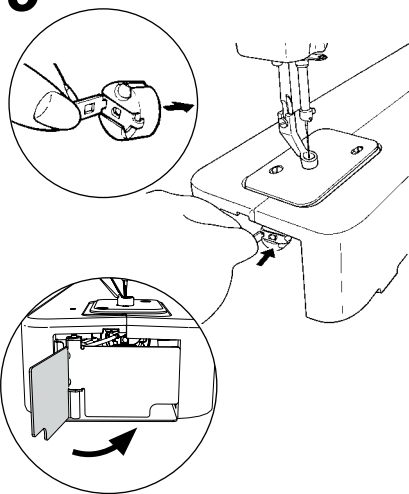
■ **Loading the bobbin into the bobbin case.**

Snap in the bobbin case latch, and put the bobbin into the bobbin case so that the bobbin runs clockwise.
Passing the thread through the slit of the bobbin case, continue passing it under the thread tension spring, and pull out the thread open end about 10cm from the bobbin case.



* The bobbin should run clockwise.

8



CAUTION

Turn OFF the power switch.

■ **Set the bobbin in the sewing machine.**

Insert the bobbin case fully into the hook, and close the bobbin case latch.
Close the hook cover.

Adjusting the bobbin winder guide

Good



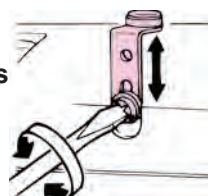
Thread unevenly wound around the bobbin would badly affect the bobbin thread tension.



Thicker toward downside

Loosen the screw of the bobbin winder guide to make adjustment.

Loosens



Tightens

↑ Move up

↓ Move down

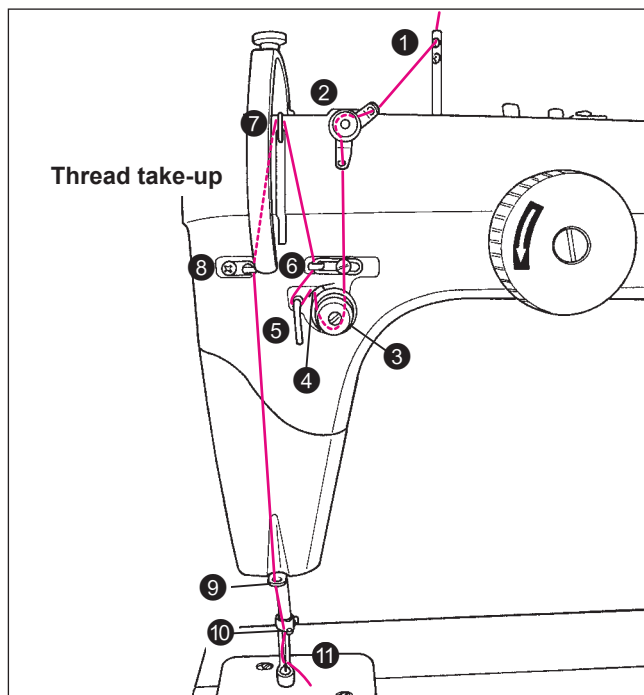


Thicker toward upside

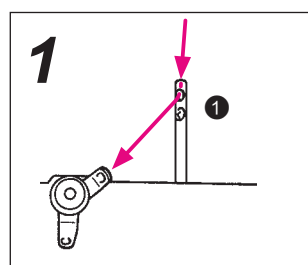
Threading the machine

CAUTION

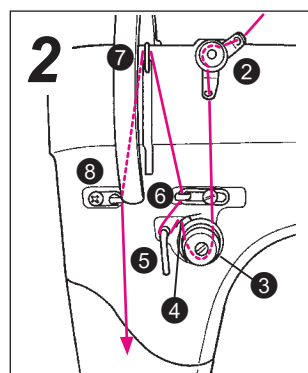
Turn OFF the power switch before threading or passing thread.



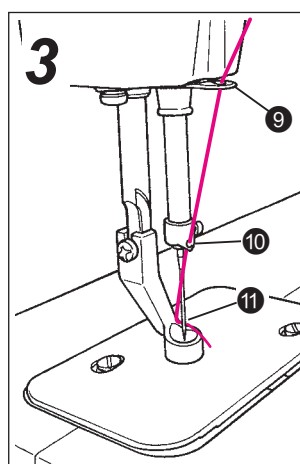
* Bring the thread take-up ⑦ to the upper end of its stroke. Then, pass the thread through it.



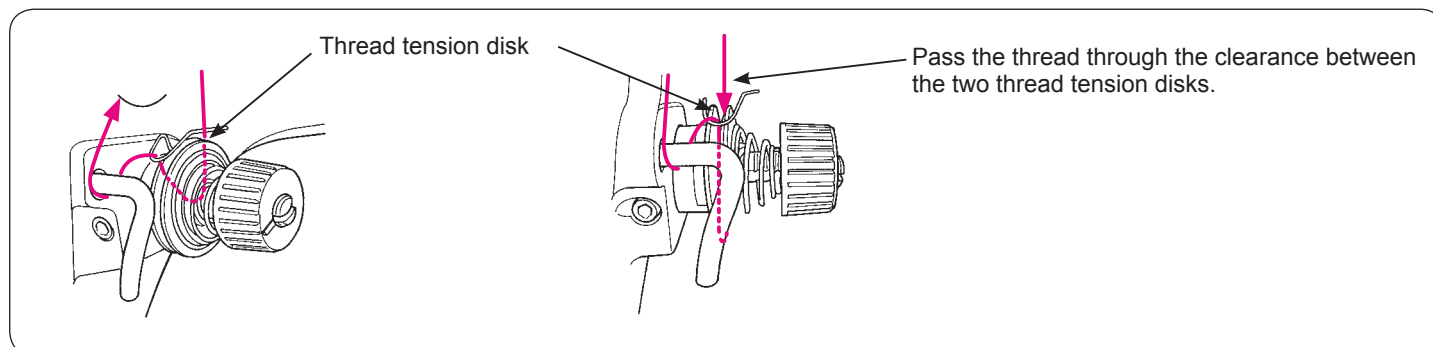
■ Pass the thread through the thread guide ①.



■ Thread the machine head in numerical order, ② to ⑧.



■ Pass the thread through the thread guides ⑨ and ⑩. Thread the needle ⑪.

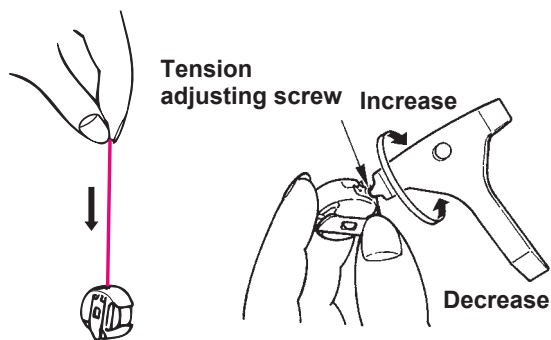


Adjusting the thread tension



Turn OFF the power switch before taking out the bobbin case or replacing the needle.

· Adjusting the bobbin case



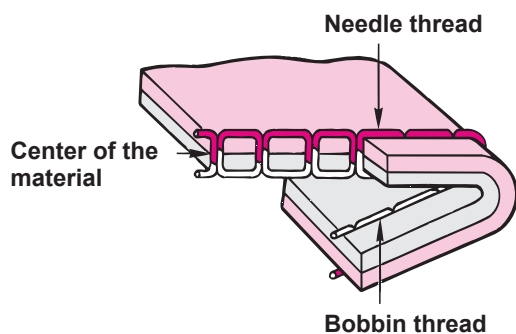
As a measure of the thread tension applied by the bobbin case, when a bobbin (Cotton TEX40) is loaded in the bobbin case, the bobbin should slowly drop by its own weight as illustrated in the figure.

* Adjust the needle thread tension in accordance with the bobbin thread tension.

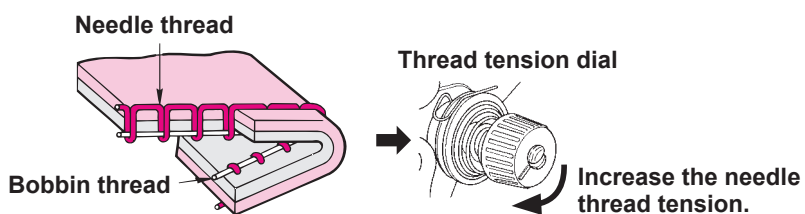
* The bobbin case for the TL-2200QVP is an exclusive JUKI part. Please consult the JUKI dealers when you purchase it.

· Proper thread tension

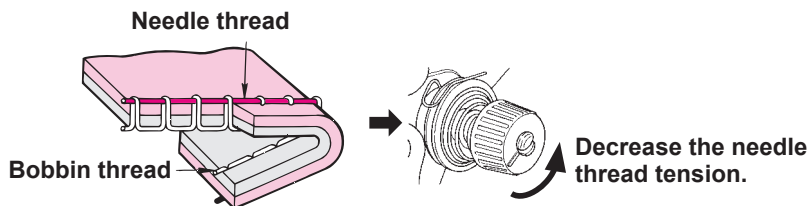
Improperly adjusted thread tension may cause puckering on materials, inferior stitches, or thread breakage.

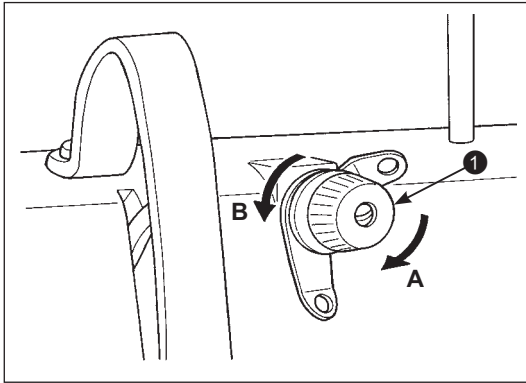


The needle thread tension is too low



The needle thread tension is too high





■ Tension controller No. 1

When tension nut No. 1 ❶ is turned to the right **A**, the remaining length of thread after thread trimming is shortened. When it is turned to the left **B**, the remaining length of thread is lengthened.

* Be sure to carry out back tacking by several stitches at the beginning of sewing.

Tabulated relationship between material, thread and needle

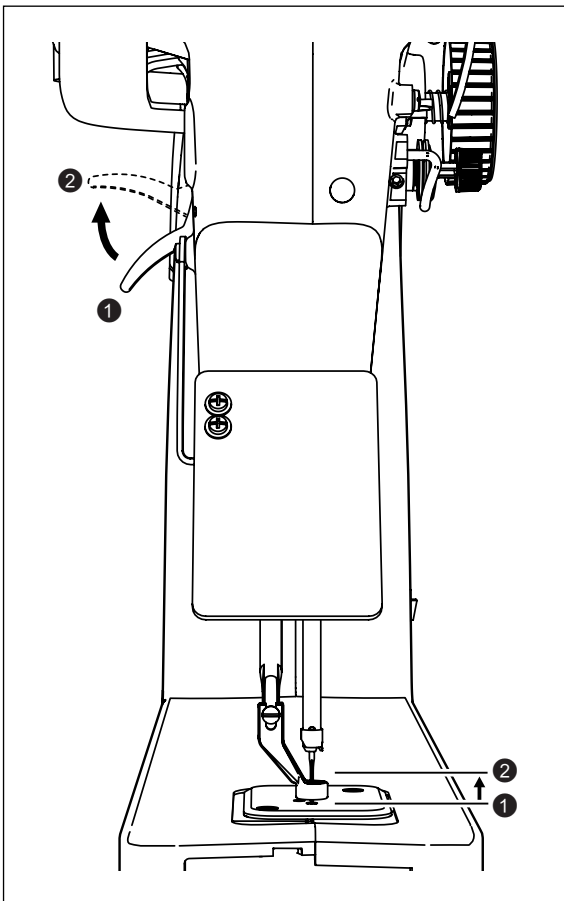
Material	Thread	Needle
Cotton broadcloth *2 + felt	A&E Signature Machine Quilting Thread (cotton) TEX40	#18
Cotton broadcloth *2 + felt	YLI Machine Quilting Thread (cotton) TEX40	#18

* Be sure to check the relationship between the material and the needle or thread by carrying out trial stitching on a waste piece of the cloth to be sewn.

* Decrease the sewing speed when using frictional thread such as the metallic thread.

* Thread may not be trimmed with ease depending on its type. In this case, In this case, be sure to shift the sewing machine toward the handwheel before trimming the thread.

Presser foot lifting lever



■ Presser foot lifting lever

The presser foot can be brought to its upper position or to its lower position by lifting/lowering the presser foot lifting lever.

❶ Lowered position The position of the presser foot during sewing.

❷ Upper position The position of the presser foot during placement/removal of a sewing product on/ from the sewing machine.

* Before starting sewing, be sure to lower the presser foot lifting lever. If you carry out sewing with the presser foot lifting lever lifted, needle breakage, sewing machine failure and stitching failure can occur.

Attaching the needle

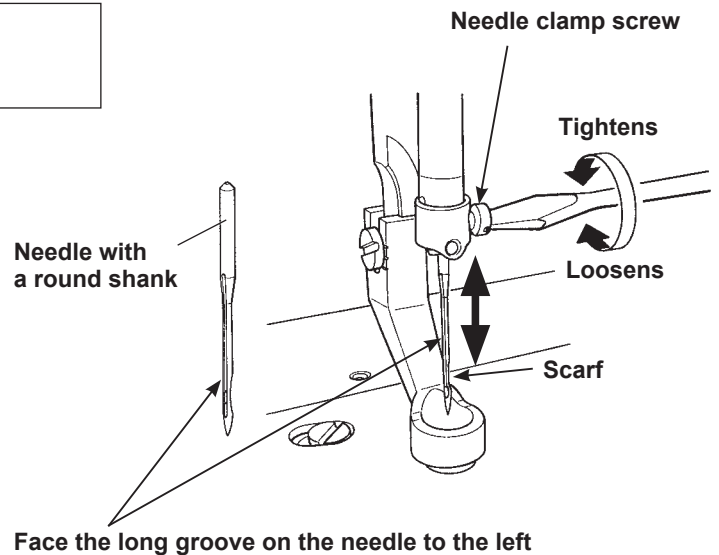


CAUTION

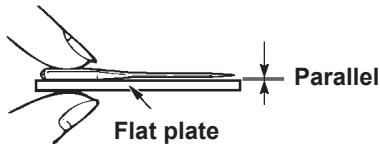
Turn OFF the power switch.

Attaching the needle

1. Turn OFF the power switch.
2. Lower the presser foot.
3. Move the needle bar up to the highest position of its stroke.
4. Holding a needle with its long groove faced to the left, insert the needle into the needle bar until it will go no further. Then, tighten the needle clamp screw.

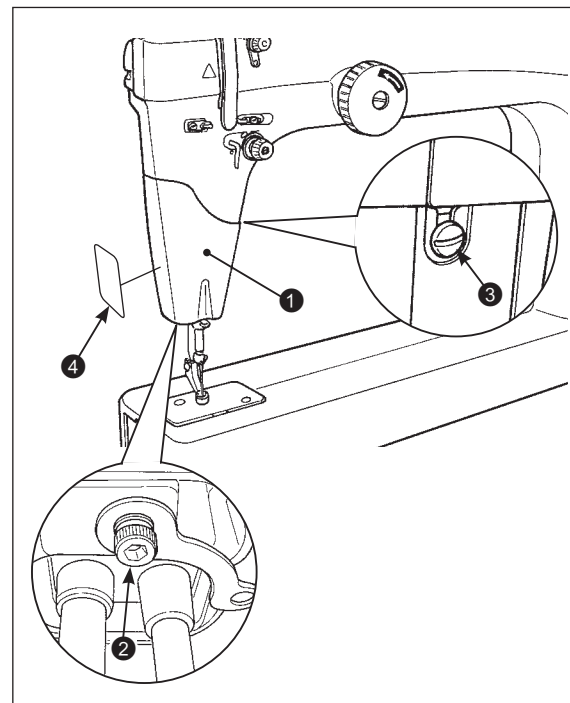


Checking the needle



- Check the needle for its straightness occasionally. Any defective needle would cause needle breakage, stitch skipping, thread breakage or damage to materials.

Maintenance



■ Replacing the masking seal



CAUTION

Turn OFF the power switch.

Always must be disconnected plug from socket-outlet.

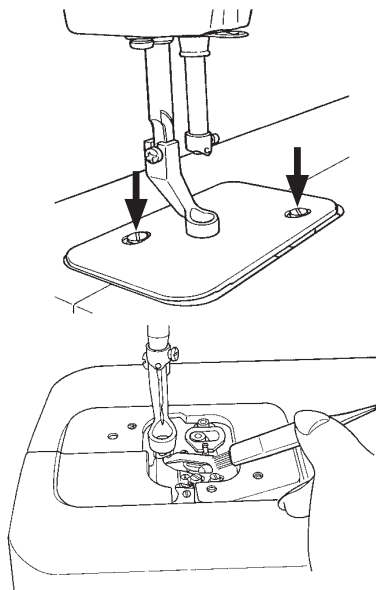
1. Remove two setscrews ② and ③ from LED cover ①. Then, the LED cover can be lowered.
2. Rip off the stained masking seal. Put new masking seal ④ in place.

Maintenance and lubrication

CAUTION

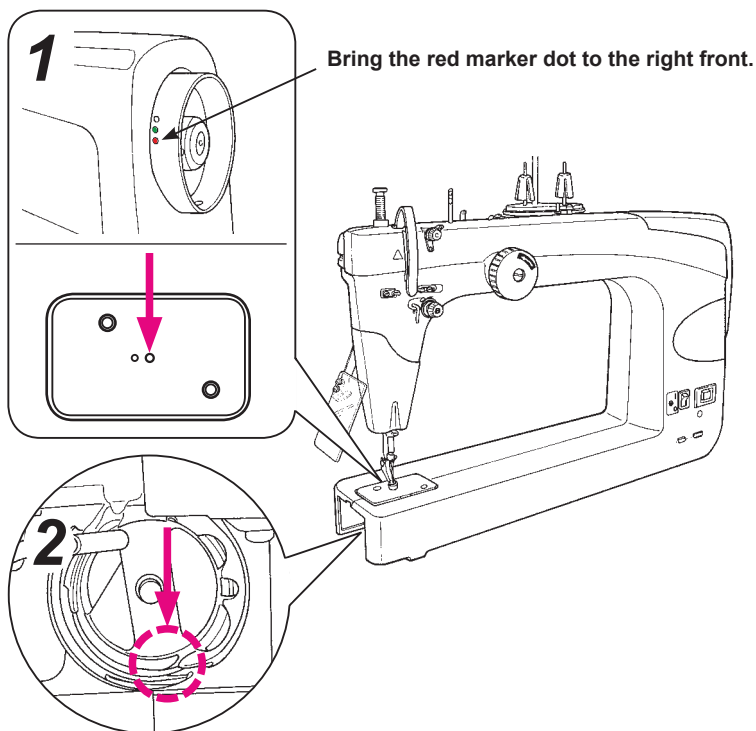
Always must be disconnected plug from socket-outlet before cleaning or lubricating the sewing machine.

Cleaning the hook



- Turn OFF the power switch. Remove the needle.
- Loosen the screws to remove the throat plate.
- Then clean up the hook components using a cleaning brush.

Lubricating the machine



CAUTION

1. If oil gets in eyes, immediately rinse the oil out with water. If you swallow oil by mistake, immediately consult a medical doctor.
2. Keep this machine away from children.
3. Waste oil disposal is legally obliged. Dispose of the waste oil according to the relevant legislation.

The sewing machine can be lubricated in two different methods. Select one of the two methods for lubrication.

- 1**
 1. Lubricate the machine after removing the bobbin case.
 2. Turn the handwheel so that its red marker dot comes to the right front as viewed from just beside the sewing machine.
 3. Apply one or two drops of oil to the hole indicated by the arrow.

- 2**
 1. Lubricate the machine after removing the bobbin case.
 2. Apply one or two drops of oil to the arrowed sections shown in the figure.

- Use the machine oil (New Defrix Oil No.1 or similar) supplied with the machine.
- After the lubrication, turn the handwheel by hand to allow the oil to spread in the whole hook.
- For daily use, lubricate the sewing machine once a day.
- After unpacking or after the sewing machine remained unused for an extended period of time, apply a larger quantity of oil (five to seven drops) than usual. If the quantity of oil is excessive, oil can drop on the material. Take care not to apply an excessive quantity of oil to the needle bar and the hook section.
- After the lubrication, carry out trial stitching without exceptions.

Troubles and Corrective Measures

If sewing difficulties occur, make sure the instructions are correctly followed. If a problem still exists, the reminders below help to solve it.

Troubles	Case	Corrective measures	Page
Stitches are skipped.	1. The needle is bent or the needle point is blunted.	· Replace the needle.	26
	2. The needle has not been attached to the needle bar properly.	· Attach the needle properly to the needle bar.	26
Needle thread breaks.	1. The machine head has been threaded incorrectly.	· Correct the threading.	23
	2. The needle thread tension is too high or low.	· Properly adjust the thread tension.	24
	3. The needle is bent or the needle point is blunted.	· Replace the needle.	26
	4. The needle is not suited to the thread used.	· Replace the needle by the one suited to the thread used.	26
The bobbin thread breaks.	1. The bobbin thread tension is too high.	· Decrease the tension.	24
	2. The rubbing of the bobbin case spring has produced a slot.	· Replace the bobbin case.	-
The needle breaks.	3. Scratches on the needle hole in the throat plate.	· Replace the throat plate.	-
	1. The needle is bent or has been installed improperly.	· Replace or correctly attach the needle.	26
Stitches are puckered.	2. The needle hits the throat plate or the presser foot.	· Correctly position the needle, throat plate, or presser foot.	-
	1. The tension of the needle thread is not balanced with that of the bobbin thread.	· Balance the tension.	24
	2. When the combination of the needle and the thread is improper.	· Properly correct the combination of needle and the thread.	25
Stitch performance is bad.	3. The needle is too thick for the material.	· Replace the needle by the one suited to the material.	25
	1. The tension of the needle thread is not balanced with that of the bobbin thread.	· Balance the tensions.	24
The rotation noise is too heavy or too high.	1. Thread wastes accumulate in the hook.	· Clean up the sewing machine.	27
The handwheel does not rotate smoothly or does not turn.	1. The thread is entangled and caught in the hook.	· Lubricate the hook, strongly turn the handwheel clockwise and counterclockwise several times, then remove the thread caught in the hook.	-
The sewing machine cannot perform sewing at the beginning of sewing.	1. Remaining length of thread is shorter.	· Loosen the tension controller No. 1 (turn to the left) to increase the remaining length of thread after automatic thread trimming.	25
	2. Back tacking has not been carried out.	· Draw thread through the needle eyelet to adjust the remaining length of thread to approximately 5 cm. · Be sure to carry out back tacking by several stitches at the beginning of sewing.	- 25